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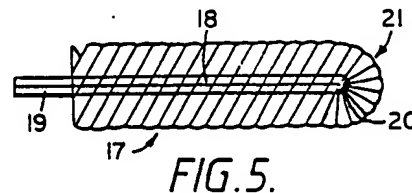
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(54) Material applicator

(57) An applicator for a liquid or semi-liquid substance, the applicator having an applicator head comprising an elongate stem 18 and substance retention material projecting from said stem. At the end of the applicator head an elongate support member 19 from which the stem is formed, and which carries the substance-retention material, is bent back upon itself to form a hairpin bend 20, and the substance retention material projecting from the hairpin bend in the support member extends axially beyond the end of the stem at 21.



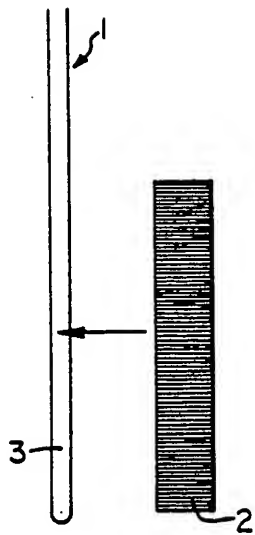


FIG. 1.



FIG. 2.

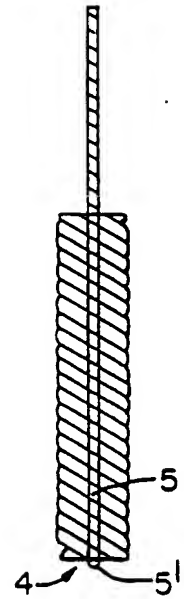


FIG. 3.

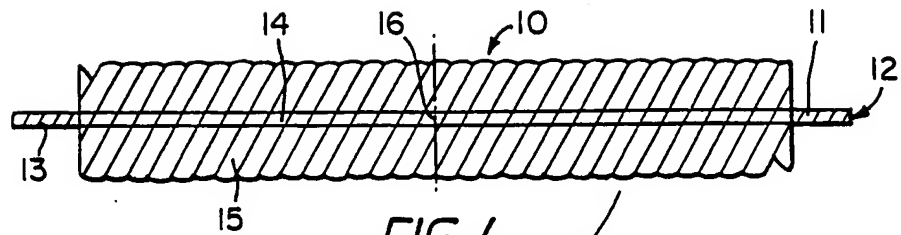


FIG. 4.

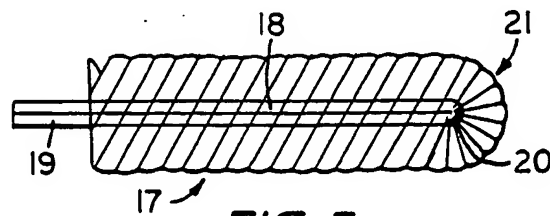


FIG. 5.

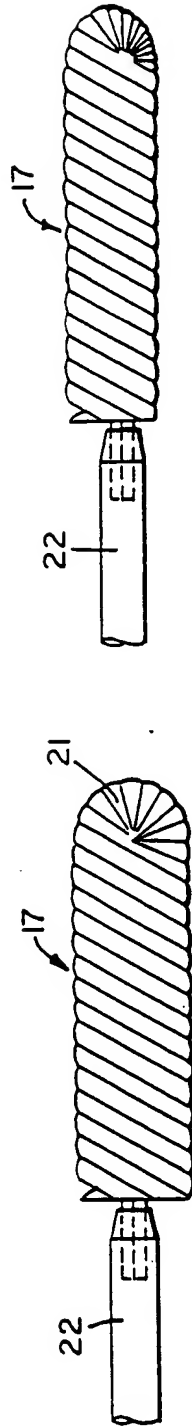


FIG. 7.

FIG. 6.

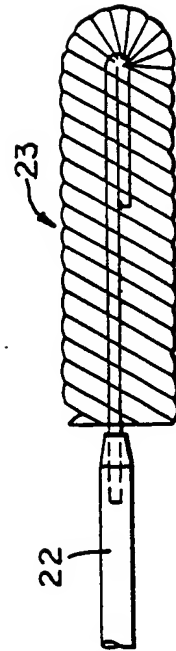


FIG. 8.

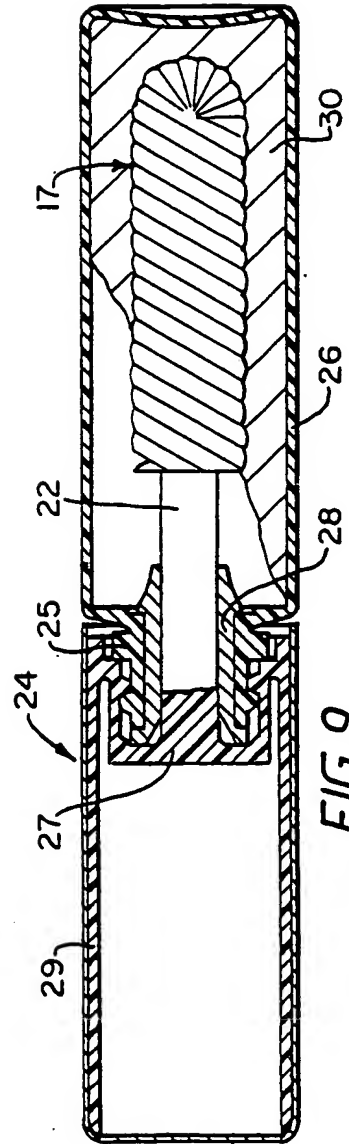


FIG. 9.

## SPECIFICATION

## Material applicator

5 This invention relates to a material applicator, and particularly, but not exclusively to an applicator of the brush type having a twisted wire stem and radially projecting bristles. The applicator of the invention is particularly, but not exclusively, suitable for use in the application of liquid or semi-liquid cosmetics material, e.g. for applying mascara to the eyelashes.

Figures 1 to 3 of the accompanying drawings illustrate a known process for making a twisted wire stem brush. In this known process, a length of wire is bent mid-way into a hairpin shaped wire element 1, and a row of bristles 2 is inserted into the slot 3 between the two arms of the element 1. The bent end 1a of the element 1 is then clamped and held rotationally fixed, while the two free ends 1b of the arms are twisted about their longitudinal axis, as illustrated. This twisting forms the bristle row into two helical flightings and is continued until the hairpin member forms into a tight double helix in which the bristles are securely rooted.

The resulting form of brush (shown in Figure 3) is satisfactory for many uses where it is only necessary to provide for lateral application of material from the brush. However, in some situations this restriction on the direction of application of the material from the brush is inconvenient. This is particularly so in the case of application of cosmetics materials where the user may wish to apply different amounts of the material to different areas. Where, for example, a brush of the type illustrated in Figure 3 is supplied as part of a mascara cosmetics package, the user may find it very difficult to apply small quantities of mascara to the eyelashes at the corner of the eyelids adjacent the bridge of the nose. This difficulty is attributable to the fact that at the end 4 of the brush all of the bristles extend radially, none of them projecting axially beyond the end 5' of the twisted wire stem 5.

Moreover, this end portion 5' of the twisted wire stem 5 is not only axially exposed but also projects slightly beyond the end of the axial end of the bristles. This is a well-known problem in the design and manufacture of applicators for cosmetics; whilst it is widely acknowledged that this projecting wire end presents a hazard to the user, particularly when applying material in the areas around the eyes, no cheap and practical alternative which fully overcomes the problem has hitherto been available.

The present invention therefore aims to provide an applicator in which the above difficulties are at least partly alleviated, and a method of making such an applicator.

In one aspect, therefore, the invention provides an applicator for a liquid or semi-liquid substance, the applicator having an applicator head comprising an elongate stem and substance retention material projecting from said stem, wherein at the end of said applicator head an elongate support member from which the stem is formed, and which carries the substance-retention material, is bent back upon itself

so that substance retention material projecting from the bend in said support member extends axially beyond the end of said stem.

In another aspect, the invention provides a method of making an applicator for a liquid or semi-liquid substance, the method including forming an applicator head from an elongate support member along which substance-retention material is carried such as to project laterally therefrom the formation of said applicator head including the step of bending said support member back upon itself so that at the bend substance-retention material projecting from the support member extends axially beyond the end of the stem formed by the bent support member.

In the disclosed embodiment, the support member is a double helical twisted wire element from which bristles which constitute said substance retention material project as two helical flightings. Before bending, this bristle support is longitudinally symmetrical and has opposite end portions which do not carry bristles, and this support member is bent back upon itself about its mid point so as to bring these two end portions together. Accordingly, at the end opposite the bend these two end portions together constitute a shaft which can be fixed into the end of a handle for the applicator.

The required profile of the finished applicator can be achieved by trimming the bristles either before or after bending the support back upon itself.

In a further aspect, the invention provides an applicator for a liquid or semi-liquid cosmetics substance, the applicator having an applicator head comprising a twisted wire stem carrying substance retention material which projects laterally from the stem, wherein at the free end of said applicator head a portion of said material projects axially beyond the end of the stem.

In another aspect of the invention provides a cosmetics package comprising any applicator as defined above in combination with a container containing a quantity of liquid or semi-liquid cosmetics material to be applied using the applicator.

Some embodiments of the invention will now be described by way of example with reference to Figures 4 to 7 of the accompanying drawings. In the drawings:-

Figures 1 to 3 illustrate a known process for the manufacture of a twisted wire stem brush;

Figure 4 illustrates a brush element from which an applicator in accordance with the invention can be made;

Figure 5 illustrates in longitudinal section an applicator element, in accordance with the present invention, made from the brush member of Figure 4; Figure 6 illustrates an assembled applicator including the applicator element of Figure 5;

Figure 7 illustrates an assembled material applicator having a non-symmetrical brush profile;

Figure 8 illustrates an assembled material applicator according to another embodiment; and

Figure 9 illustrates, in longitudinal section an assembly of the material applicator of Figure 6 and a container containing cosmetics material to be applied by the applicator.

Figure 4 illustrates a basic brush element 10 from which an applicator in accordance with the invention can be made. This element is made using a technique similar to that illustrated with reference to

- 5 Figures 1 to 3, except that at an end portion 11 adjacent the end 12 which was clamped fixed during the twisting step either there are no bristles, or the bristles are trimmed down to the stem surface. There is also a portion 13 at the other end (adjacent the
- 10 ends which were twisted during the twisting step) which are left free of bristles. This brush member 10 thus comprises a central elongate bristle support 14 from which the twin helical flightings of bristles 15 project axially. In the next manufacturing step, the brush member 10 is bent back upon itself at its mid point 16, as illustrated, about an angle of 180° so as to form a brush applicator 17 in which the two halves of the bristle support lie parallel to, and alongside one another to constitute a central stem 18, as
- 20 illustrated in Figure 5. The two bare end portions 12 and 13 of the bristle support are brought together to form an end shaft portion 19 of the central stem, and this shaft portion may be attached to any suitable form of holder, handle etc 22, for example as shown
- 25 in Figure 6.

The bristles projecting from the outside of the bend 20 in the bristle support form an end brush portion 21 in which many of the bristles project beyond the end of the stem constituted by the bend.

- 30 In the illustrated arrangement, this end portion is substantially hemispherical.

The required outer profile of the applicator brush can be achieved either by trimming the bristles of the brush element 10 before bending, or by trim-

35 ming the bristles of the brush applicator 17 formed by bending the brush element double. Any form of trimming may be applied, and Figure 7 illustrates a finished applicator in which a non-symmetrical form of trimming has been applied whereby the bristles

40 on the upper half of the applicator brush are generally longer than those on the lower half.

The advantage of the arrangement formed by the above-described technique is that it includes end bristles which project axially beyond the end of the central stem. These bristles, when appropriately

45 trimmed, may be used for the application of material in awkward or confined places. The bristles projecting radially along the length of the main part of the brush can be used for material application in less

50 confined places in the same way as in the case of the brush shown in Figure 3.

Also, the curved outer surface of the bend 20 is itself much less dangerous than the end 5' of the Figure 3 brush, and is moreover covered and

55 concealed by the end bristles.

It will be appreciated that to produce the end bristles it is not necessary to bend the brush member about its mid point, nor is it necessary to provide bare stem portions at both ends. Figure 8, for

60 example, illustrates an applicator comprising a brush applicator 23 formed by bending a brush member of the form shown in Figure 3 about a point only about a quarter of the way along the length of the stem carrying the bristles from the end 4.

65 The above described embodiment uses a basic

bristle brush element 10. It will be appreciated that other forms of material-retention elements, carried by an appropriate type of elongate support member, may be employed. For example an absorbent fibre material, e.g. cotton-based, held in a twisted wire stem (as in a pipe cleaner) may be used.

- 70 Figure 9 shows a cosmetics package in which the applicator of Figure 6 is an integral part of a cap and applicator unit 24, which is adapted to fit on the neck
- 75 25 of a container 26 containing a quantity 30 of liquid or semi-liquid cosmetics material, such as mascara. In the disclosed package, the holder 22 is integrally formed with, and extends axially from a closure portion 27 of the unit 24, and this closure portion
- 80 snap-fits over the container neck with the holder 22 projecting axially through a wiper collar 28 inserted into the neck 25. This wiper cleans the holder shaft 22 and wipes the applicator 17 of excess cosmetics material as it is withdrawn from the container. The
- 85 cylindrical part 29 of the unit 24 provides a handle for the applicator.

#### CLAIMS

- 90 1. An applicator for a liquid or semi-liquid substance, the applicator having an applicator head comprising an elongate stem and substance-retention material projecting from said stem, wherein at the end of said applicator head an elongate
- 95 support member from which the stem is formed, and which carries the substance-retention material, is bent back upon itself to form a hairpin bend, the substance retention material projecting from said hairpin bend in said support member extending
- 100 axially beyond the end of said stem.
2. An applicator according to claim 1 wherein the support member is a twisted wire element and wherein said substance retention material comprises bristles rooted in and projecting laterally from
- 105 said twisted wire element.
3. An applicator according to claim 1 or claim 2 wherein said elongate support member is bent back upon itself about its mid-point.
4. An applicator according to claim 3 wherein
- 110 said elongate support member has two opposite end portions which do not carry substance-retention material and which in the bent configuration lie adjacent one another and constitute an end shaft portion of the applicator.
- 115 5. An applicator for a liquid or semi-liquid cosmetics substance, the applicator having an applicator head comprising a twisted wire stem carrying substance retention material which projects laterally from the stem, wherein at the free end of said
- 120 applicator head a portion of said material projects axially beyond the end of the stem.
6. An applicator according to claim 5 wherein at said free end said twisted wire stem is bent back upon itself to form a hairpin bend, said portion of
- 125 said material projecting from said hairpin bend.
7. An applicator according to claim 6 wherein said twisted wire stem is bent back upon itself about its mid-point.
8. An applicator according to claim 7 wherein
- 130 said twisted wire stem has two opposite end por-

tions which do not carry substance-retention material and which in the bent configuration lie adjacent one another and constitute an end shaft portion of the applicator.

- 5 9. An applicator according to claim 4 or claim 8, and further including an elongate handle member having at one end thereof an axially extending recess in which said end shaft portion is fixed.

- 10 10. An applicator for a liquid or semi-liquid substance, substantially as hereinbefore described with reference to any of Figures 5 to 8 of the accompanying drawings.

11. A cosmetics package comprising any applicator according to any preceding claim in combination with a container containing a quantity of liquid or semi-liquid cosmetics material to be applied using the applicator.

12. A method of making an applicator for a liquid or semi-liquid substance, the method including forming an applicator head from an elongate support member along which substance-retention material is carried such as to project laterally therefrom, the formation of said applicator head including the step of bending said support member back upon itself to form a hairpin bend so that at the bend substance-retention material projecting from the support member extends axially beyond the end of the stem formed by the bent support member.

13. A method according to claim 12 wherein said support member is bent back upon itself about its mid point.

14. A method according to claim 12 or claim 13 including the further step of profiling said substance-retention material before bending the support back upon itself.

15. A method according to claim 12 or claim 13 including the further step of profiling said substance-retention material after bending the support back upon itself.

- 40 16. A method of making an applicator for a liquid or semi-liquid substance, substantially as hereinbefore described with reference to any of Figures 5 to 8 of the accompanying drawings.